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Poetry.

THE WORLD IS FULL OF BEAUTY.

There is a voice within me,
And 'tis so sweet a voice,
That its soft lispings win me
Till the tears start to mine eyes;
Deep from my soul it springeth,
Like hidden melody,
And evermore it singeth
This song of songs to me—
"This world is full of beauty,
As other worlds above;
And if we did our duty,
It might be full of love!"

When plenty's round us smiling,
What wakes this cry for bread?
Why are crush'd millions toiling,
Gaunt—clothed in rags—unfed?
The sunny hills and valleys
Blush ripe with fruit and grain,
But the lordling in the palace
Still robs his fellow men.
O God! what hosts are trampled
Amid this press of gold:
What noble hearts are sapp'd of life,
What spirits lose their hold!

And yet upon this God-blest earth
There's room for every one;
Ungarner'd food still ripens,
To waste, rot in the sun,
If gold were not an idol,
Were mind and merit worth,
Oh, there would be a bridal
Betwixt high heaven and earth!
Were truth our utter'd language,
Angels might talk with men,
And God-illumin'd earth should see
The golden age again.

For the leaf-tongues of the forest—
The flower-lips of the sod—
The birds that hymn their raptures
Into the ear of God—
And the sweet wind that bringeth
The music of the sea,—
Have each a voice that singeth
This song of songs to me.
"This world is full of beauty,
As other worlds above;
And if we did our duty,
It might be full of love!"

THE STAR AND THE CHILD.

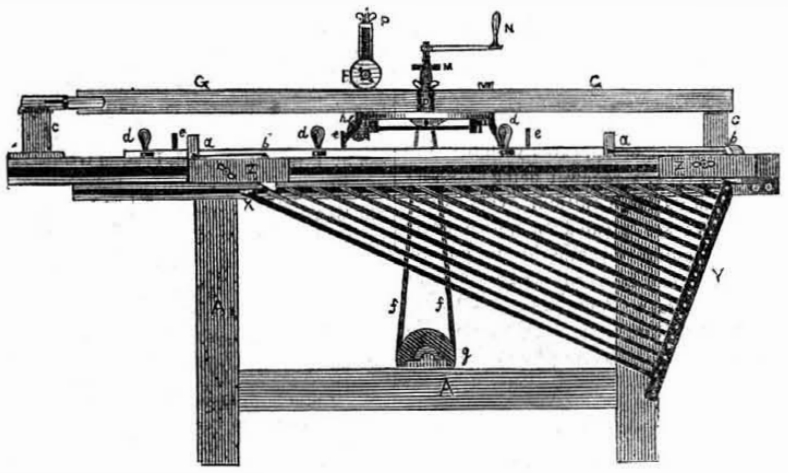
A maiden walked at eventide
Beside a clear and placid stream,
And smiled, as in its depths she saw
A trembling star's reflected beam.

She smiled until the beam was lost,
As 'cross the sky a cloud was driven,
And then she sighed, and then forgot
The star was shining still in heaven.

A mother sat beside life's stream,
Watching a dying child at dawn,
And smiled, as in its eye she saw
A hope that it might still live on.

She smiled until the eyelids closed,
But watched for breath until the even;
And then she wept, and then forgot.
The child was living still in heaven.

MACHINE FOR MORTICING WINDOW BLINDS.---Figure 1.

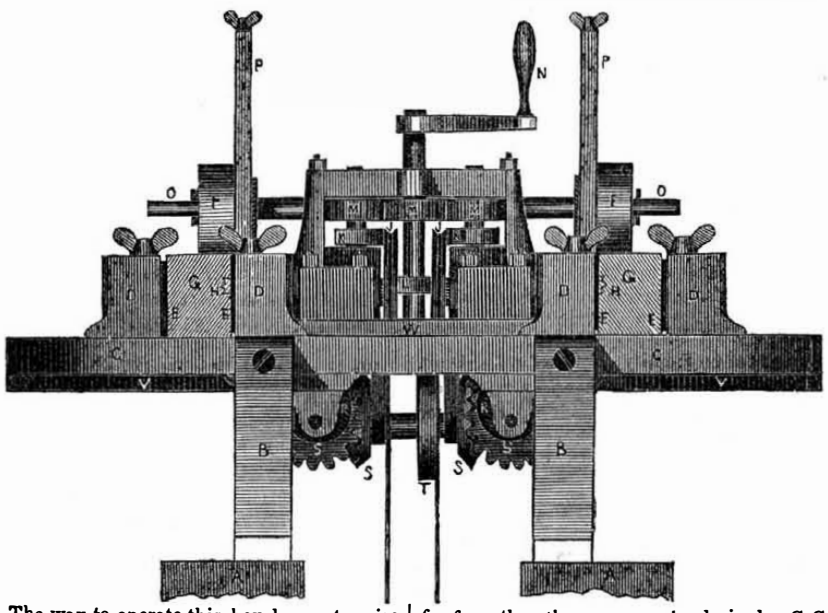


This machine is the invention of Mr. John Wiley, of New Orleans, La. Its object is to bore correctly the frame of window blinds to receive the slats, also to bore the middle of the slats and the centre rail to receive the links that unite them together, so as to raise the blinds up and down. The mortices for the slats are bored out in both sides of the frame at one and the same time, and the exact distance between each mortice is correctly laid out by the matching frame below.

Fig. 1, is a side elevation, and Fig. 2 is a transverse section. A A, is the frame of the machine and Y is a matching frame, composed of a number of strips of wood laid out at the exact distances from one another, say one inch, or they can be drawn in to measure off any distance that is not less than the thickness of each strip by the tops sliding back in the small groove at X. The stack to be morticed is represented by G, which is placed in a sliding frame *a a*, (one stack on each side) and fed into the morticing drills under the feeding roller F, and inside of the guide D, which has a friction roller inside of it to move against the side of G. There are two of these guides D, one on each side of G, as seen in the cross section at fig. 2.

In fig 2. the stack or side G, of the window blind is represented as passing below the feed roller F, and the guide or side feeding rollers D D, and is acted upon by the morticing drill H. H. The cutters are moved out and in, to cut a mortice, and recede during every revolution of a small vertical shaft turned by the crank N. On the inner end of the cutter shafts are fixed grooved pulleys J J, which revolve the cutters H H, by the bands *f f*, passing up from the driving pulley *g*, fig. 1. The cutters receive the reciprocating, or out and in motion, from three double angle cams, L on the shaft of N, and K K on two sub shafts—the cam L, drives out the cutters, and the cams K drive them back. The cams K K receive motion by the gearing pinions M M M. Fig. 2 exhibits this combination and the way the stack is fed through and to the drills H. W, is the bed plate that supports the machinery. P P, are two uprights with coiled springs between each pressing on blocks that rest in the shaft O, to regulate the feed of the rollers F. All the feed rollers are thus regulated by the nuts on the top of them, as seen in both engravings. The bevel gearing S S, between the two posts B B, fig. 2, are to operate two cams R R, to raise up the drilling machinery so as to bore or drill the blind frame or slats at any point in their diameter.

Figure 2.



The way to operate this bevel gear to raise up the cutters is by a rack wheel T and a ratchet on the other side of the machine. We will now explain how the *frame* to be morticed is carried forward, and retained at the exact points for the mortices. We find some difficulty in doing this, so as to render it plain, that others may understand it as we do.

In fig. 1, the Italic characters refer to the frame that carries forward G to the drills. Y, the guage or matching frame is stationary and lays out G, to be morticed—each mortice as far from the other as may be desired. C C, *d d* and *a a*, are parts of a sliding frame that moves along in a longitudinal recess on the top of the table A A. To this frame is attached two ratchet slides Z Z, which slide in the dark groove. Each of the ratchet slides has a slot cut down through it for the catch (seen by the white angle) to work in, to be lifted up and drop down, working on an axis, to allow the slide frame and G to be pushed forward to the cutters by drawing up the catch by the handle *a*, which is attached to it by a small chain *b*, and retaining the slide frame and G again at the exact point by dropping the catch into the next slat of Y, when the slide frame is pushed forward by the handles *a* and *e*, and so on continually. *h*, are the supports of the bed plate W, seen on an enlarged scale in fig. 2. By this machine various tools may be employed for cutting, marking or morticing for different kinds of work. Measures have been taken to secure a patent.

RAILROAD NEWS.

Damages for Fatal Accidents.

The Marblehead Mercury states that the Eastern Railroad Corporation have asked from the relatives of those who were killed on that road by the collision last November, to bring in "sealed proposals," setting a price on their lives. The Legislature have passed a law that not over $5000 shall be recovered by the relatives of any person killed on any Railroad in that State.

Cincinnati and St. Louis Railroad.

The city council of Cincinnati, have subscribed $500,000 to aid in the construction of this great Railroad.

Reading Railroad.

The London Morning Chronicle states that more than eight million dollars of British money are now invested in the bonds and stocks of the above mentioned company.

Harlem Railroad.

Last week as the freight train on this road was nearing the tunnel, a heavy mass of rocks and earth fell upon the track, and the cars running against it, were smashed to atoms. The engineer and fireman miraculously escaped with but little injury.

A new route is about to be established between the Gulf of Mexico and the Pacific. Lines of stages between the two oceans are to connect this route with steamboats on the Atlantic and Pacific.

Another Explosion.

The steamboat Hecla while leaving the Bayou Sara, La., lately unfortunately collapsed both flues of the larboard boilers, and the steam passing entirely through the main deck which was covered with deck passengers, a great number of them were scalded, and several killed. The full number killed and wounded is not known. Three were killed instantly, and a number of others were missing. Between twenty and thirty were known to be scalded, some four or five so badly that they were not expected to live. Are we never to have an end of this wholesale steamboat murder in the West?

English Miners in Spain.

An English company has leased the silver mines of Guadalcanal, in Seville, which have been under water for 150 years. The company proposes to drain them. One of its members is the celebrated Harvey, who drained the Lake of Haarlem, in Holland. The water has already been removed from a portion of the mines, and some valuable specimens of the silver ore taken from the lodes and sent to England. From the product of these mines the far-famed palace of Escurial was built.

Straits of Magellan.

It is said that large beds of coal, of a superior quality, have been discovered at the Straits of Magellan. Some years ago this would have been a most important announcement, but now it can only subserve the temporary purpose of being serviceable to such steamers as California adventurers may take around the Horn, until the railroad and canal across the Isthmus are finished. That may be a pretty long time, nevertheless, especially as regards the canal.

A pound of crude iron costs 4 cents, but by labor its value for watch springs increases to $2000.

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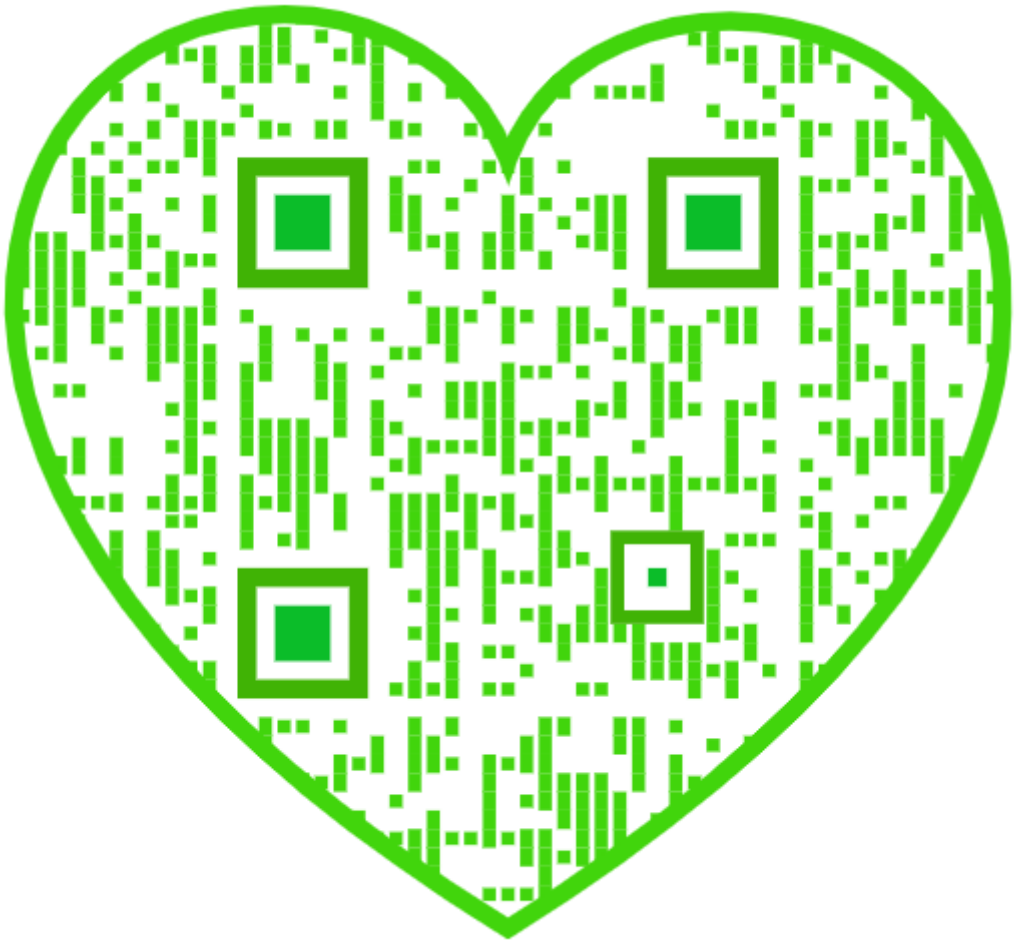

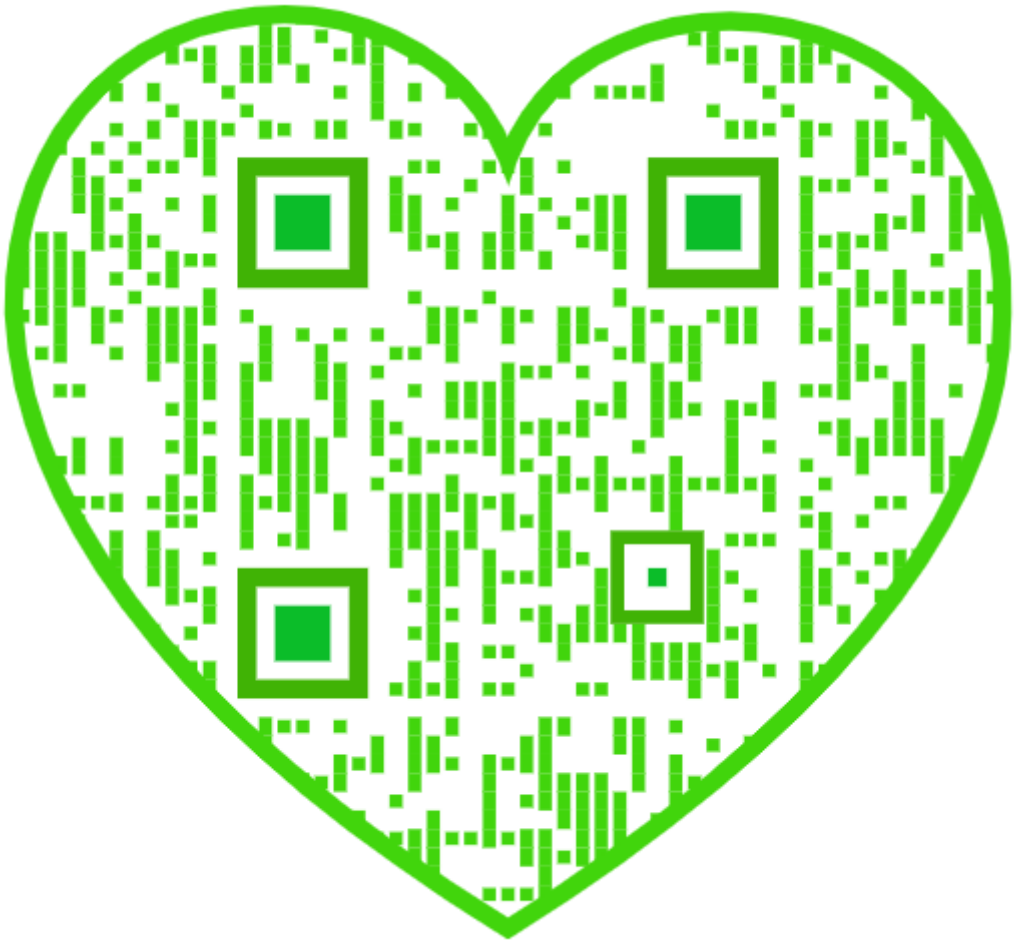

The National Convention of Inventors.

This Convention held their first meeting in Baltimore, on the 6th and 7th inst. We published the names of the officers last week. We give below a digest of the proceedings. Delegates from all section of the Union were in attendance.

J. L. Mott, Esq. of this city, presented and read a Bill which has been prepared by the Committee of the National Convention of Inventors, lately held in Boston. Also the Bill (No. 102) passed by the House of Representatives, July 19th, 1848, which, after some discussion, were referred to the Inventors' National Institute of Baltimore.

On motion of Horace H. Day, Esq, of New York. it was resolved that such business prosented to this Convention as properly appertains to the Inventors' National Institute be referred to that body, and that this Convention recommend the expediency and do hereby call a National Convention of Inventors and others interested in Patent Property and Laws, to be held in the city of Baltimore this Fall, or such time as the Inventors' National Institute of Baltimore shall appoint, and that that Institute be authorized to spend a sum not exceeding two hundred dollars in making the call.

On motion of Horace H. Day, Esq., the following resolution was debated, and afterwards passed unanimously—That it is the deliberate conviction of this Convention, that the Commissioner of Patents should be an experienced man, of eminent practical and scientific attainments, rather than a lawyer or statesman; therefore Resolved, that Geo. Gifford, Esq., of the New York Bar, Horace H. Day, of New York, Hon. Reverdy Johnson, of Baltimore, Isaac Brown, Esq, Baltimore, and R. H. Middleton, Esq., of Baltimore, be, and they are hereby appointed a Committee to proceed immediately to Washington, and urge this subject upon the President and his Cabinet.

The Committee appointed to examine the plan of the Inventors' National Institute of Baltimore, reported the following:

Resolved, That the plan and principles embraced are eminently calculated to advance the cause of Science, improve the condition of Inventors, and result to the Public Weal, and profit to the Stockholder, from the safety of the investment, and the assistance proferred, would earnestly call upon and recommend Capitalists, and Inventers, throughout the United States, and Europe, to make themselves familiar with this Institution.

An eloquent and able address was delivered before the Convention by Geo. Gifford, Esq. of this city, and on motion of J. N. Coffin, Esq of this city, the thanks of the Convention was tendered to Mr. G., when the following resolution was offered by H. H. Day, Esq. and passed.

Resolved, That this convention invite Judge Phillips and Judge Rand, of Boston, and George Gifford, Esq., of New York, to prepare a draft of Patent Laws, to be presented to the proposed Convention of Inventors and owners of Patent property to be held in this city before the assembling of the next Congress, and that the Secretary be requested to transmit the above resolution to each of the distintinguished gentlemen named. After which the thanks of the Convention were tendered to the officers for the faithful manner in which they discharged their respective duties.

We are somewhat surprised not to notice the names of Ross Winans, and those of a few others that we might mention, as taking an active part in the Convention. The motion relative to the Commissioner of Patents is not definite enough for us. Is the Commissioner to be a mechanic, or artisan, or what? This should be plain. Some lawyers have wrought at mechanical trades, but from the above resolution, we must infer that no lawyer can be either a scientific or practical man. We believe that the Examiners more than the Commissioner, should be practical and scientific, and there is another essential qualification for an Examiner, viz. a thorough knowledge of inventions in order to decide upon what is new and what is not. The Commissioner cannot examine all the applications—that is impossible, but he should be acquainted with the Patent Laws, a man of extensive information and great impartiality.

We are opposed to the powers invested in the Commissioner, at least as assumed to judge and decide upon what the Patent Office may consider "no novelty." Many good and new inventions have been rejected while "fly traps, and horse tail setters" can boast of Patent Office Seals.

The Right Spirit.

The Public Ledger appeared yesterday in a new dress of type, a renewal being nesessary on account of its large edition, every three months. We are pleased to notice every evidence of continued prosperity in our cotemporaries. The Ledger in its 26th volume has a daily average circulation of 35,312 copies; the Daily Sun in its 10th volume has about two-thirds of this circulation. We look without the least feeling of jealousy upon the prosperity of the Ledger, and although we differ most materially from it, on many matters of politics and policy, have ever admired its business tact and its unbounded enterprise in procuring news. We shall continue an honorable rivalry with our neighbors and trust never so far to forget our own self respect, as to resort to those unworthy personalities, into which some of our predecessors were unfortunately led. Argument is the only weapon by which error can be combatted, abuse weakens the best cause.

[The above is an extract from an editorial of the Philadelphia Sun. It displays the philosophical wisdom of knowing "there is room in the world."

Newspaper Postage.

Transient newspapers will hereafter be subject to newspaper postage only; that is, one cent for any distance in the same State, and one and a half cent for any distance exceeding one hundred miles, where the newspaper is sent from one State into another.—But postage on such newspapers is in all cases to be prepaid, as heretofore.

Railroad Avalanche.

The Cheshire Railroad was stopped on Friday last week by an avalanche at a deep cut near Walpole, New Hampshire. . One hundred feet of the road was covered with earth, to the depth of twelve or fifteen feet.—On the same evening some fiend laid an iron rail across the railroad near Brighton, Mass., which threw the train off, but happily no one was injured.

Earthquakes in the Western Islands.

The Azores have been kept in a state of constant alarm for nearly two months past by a succession of earthquakes, which had thrown down many houses and churches on these islands The alarm was heightened to an intense consternation one night in December by the appearance of a brilliaat aurora borealis in the west. Such a phenemena is without a precedent in that quarter.

A new Coal Mine has recently been discovered in the vicinity of Cincinnati, Ohio. It is not so extensive however, as to interfere with the Pittsburgh coal trade—perhaps too thin a vein to warrant working. The editor of the Cincinnati Despatch has been presented with a specimen, which is said to be of a very superior quality. The deposit was discovered in excavating a new reservoir.—The Gazette says the supply does not promise to be extensive. An inexhaustible coal mine in the hills which encircle Cincinnati, would be more valuable than the gold of California. Numerous antiquities, Indian ornaments, &c., were found by the workmen in the course of their excavation.

Great Load.

The Clyde, N. Y. Telegraph says that a load of wood containing ten cords was brought into that village last week upon the plank road, drawn by two horses. It had to be divided into ten two-horse loads in distributing it about the village, after leaving the plank road.

LITERARY NOTICES.

The Ladies National Magazine for April, is as usual an excellent number, not however so well embellished as some of the previous ones. The Evening—and Paris Fashions for April constitute the engravings, but by far the most valnable part is the high character of its literary contents. We have always admired the tact of Mrs. Stephens as an Editress, and her literary character is fully sustained by her association with this Magazine. Published at Philadelphia, by C. J. Peterson, at $2 per annum.

Gold Seeker's Manual.

D. Appleton & Co. of New York, have just issued a very scientific, practical and instructive guide to persons emigrating to the newly disovered gold region of California. It is written by David T. Ansted, Prof. of Geology, and consulting mining engineer. It is an invaluable work at this time, as it describes the geological position of Gold in various rocks, its mineralogical and other characteristics, and the modes of distinguishing it when found from other substances. It is closely printed and contains 96 pages of reading matter, price 25 cents, can be ordered from Munn & Co.

American Bee Keeper's Manual.

This is a very neat volume puulished by C. M. Saxton, No. 121 Fulton st. N. Y., Edited by T. B. Miner. It is what it pretends to be, (more than can be said of many works) a practical treatise on the economy of the Honey Bee. It is illustrated with numerous engravings, very attractive in style and well arranged for reference and study. All those who wish a full and thorough history of the nature and management of the bee should have it in their posession. The price is only $1.

Godey's Lady Book.

The March number of this popular monthly teems as usual with instructive as well as entertaining matter and should be read by every American lady. The correct position for a lady to assume in walking or horseback riding is represented in this number, and with the numerous other instructive hints to the ladies, we hesitate not in pronouncing it useful as well as entertaining to the female reader. It is truly the "Ladies Book." Long & Brothers Agents for this city. L. A. Godey, publisher, Philadelphia. Price $3 per annum or 25 cents per number.

Eminent Shoemakers.

This is a very interesting volume by Fowler & Wells, No 1 Nassau st. this city. No son of St. Crispin should be without it. It is dedicated to the Shoemakers of the United States and contains the biographies of Roger Sherman, Sir Cloudesley Shovel, and a great number of famous shoemakers. It is democratic in sentiment and reformatory in character.

New Music.

Messrs Firth, Hall & Co. Music publishery No. 1 Franklin Square, this city, have furnished us with some of their new and popular music, which we are happy to acknowledge. With others of their recent publications we have to acknowledge "Legat's March," price 25 cents. "Dream of the Ocean Waltz," by Josef Gung'l, price 50 cents, and "Give me my Arrows and give me my Bow," by Samuel Lover, price 25 cents.

We have for sale Professor Kent's excellent work upon Assaying and testing the qualities of metals, particularly Gold. No man in this country understands the subject better. To be convinced of the fact a person has only to spend a few moments in his Laboratory, 116 John st. this city. Price of the book 25 cents

Who Wants a new Hat?

Our neighbor Knox, has introduced his Spring styles of Hats, and for beauty of shape and lustre has really surpasssed his former productions. To those who have once patronised Mr. Knox we need not recommend a continuance of their patronage, but to those who have not we would say "try him." His emporium is directly under our office windows No. 128 Fulton st.

The Supreme Court of the United States have adopted a rule limiting the arguments of counsel to two hours. The rule goes into effect at the next term.

Behold they Come.

Out of 3000 of our patrons whose subscriptions expired with the last number (26,) over 1000 have renewed their subscriptions within the past week.

It is flattering to us that our request to those who wished their subscriptions renewed should be responded to so early, and by so many. We hope the remaining 2000 will follow the worthy example of those that have remitted and send their subscriptions at once.—Those who are delaying to send because they are making an effort to get up a club or are waiting for some neighbor to subscribe with them are more excusable than those who are expecting to send but their own subscriptions, but to *all* we would say "hurry up your cakes."

We have received from Dr. Manson No. 20 Eighth Avenue, Practical Dentist, a specimen of his excellent "Vanilla Tooth Wash," and we take pleasure in awarding it the highest commendation. The ingredients are entirely vegetable, and it is highly impregnated with the flavor of the Vanilla Bean, thus imparting sweetness to the breath, and soundness to the teeth and gums. Dr. M. received the first premium at the great Fair in 1848. Price 25 cents.

Narrow Escape.

In one of the stores on Commercial wharf, says the Boston Traveller, a lion lately received from Africa, is kept in a cage. Recently, a small Irish boy, with his chip basket, wandered into the store, and in some way placed his back against the cage. The lion, nothing loth to make a slight luncheon, seized hold of the jacket of the little fellow, who, being terribly frightened thereat, set up a loud cry for help. Two men, who happened to be near at hand, took hold of the boy, and with a hearty pull, rescued him from the grasp of the lion, undamaged in person, though with the loss of a portion of his nether integuments.—Luckily the boy's jacket was large and unbuttoned, or he migh t not have escaped so easily.

A New Machine Wanted.

Will any of our Aldermen invent a machine to enable our street pedestrians to jump across the causeway at the crossings.

There will no doubt be fine amusement for the boys in the course of a month or so, hunting the mud turtles through Broadway and some other streets, as the Common Council has very generously planted beds of gutter both long and broad for such animals.

Homestead Exemption in Ohio.

A law has been passed by the Ohio Legislature exempting a homestead from execution not exceeding six hundred dollars in value; to take effect from and after July next.

The Amoskeag Company at Manchester N. H. employ 1400 females. Their average wages last year was $3,75 per week. During the year 12,663,765 yards of various kinds of goods were manufactured there—an enormous quantity truly.

Red was always the national color of the Northmen, and continues still, in Denmark and England, the distinctive color of their military dress. It was so of their head men and people of distinction in Norway in the eleventh century.

According to a parliamentary report, the total expenditure an account of Ireland, during the last thirty years, has exceeded the total revenue collected thereby from two to four millions per annum, whilst three-fourths of the taxes levied in Scotland have been paid into the Imperial exchequer.

The malignant spotted fever is now prevailing in some parts of Indiana. It is very fatal and difficult to treat.

The original manuscript of Jefferson's Historical Notes of Virginia which had disappeared, has at length been found. It is now in the Library of Congress.

The increase of births over deaths in Montreal in 1848 was 10,550.

The Chinese word for eyelid is eminently beautiful signifying the cradle of tears.

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On Heat and Electric Light.

BY PROF. GROVE F. R. S.

Heat is not a simple emanation of matter, nor an undulation in any ethereal medium pervading matter, but a force producing motion in matter itself, or in what we may term ordinary matter—a motion which, subdivided into minute vibrations, becomes heat. Yet, it is true, that the opinions of men regarding what "heat is," are very various. We shall now consider it as a product of voltaic ignition. We are familiar with many sources of heat the chief proximate cause of which is the solar influence, but there are others of a chemical, or mechanical character also. Among these are friction, and vital action, but the one with which we are most familiar—the one that is known in cooking our victuals and heating our houses is furnished by chemical action, in the form of combustion, chemical is far more powerful than mechanical action. The action of the steam engine is powerful, but the cause of that action is a chemical one, viz., the expansion of water into steam by heat. The effect of a ball projected from a gun is mechanical action, but the cause of the ball's action is a chemical one viz. the expansion of the gunpowder by ignition. By the voltaic battery we have a means of transferring both chemical and mechanical forces. The one to decompose the other to give mechanical motion, and consequently in both cases, the means of transferring heat.

If we take a slip of platina foil, furnished with a conducting wire immersed in a cylinder of porous earthenware filled with concentrated nitric acid, and surround the porous earthenware vessel by a roll of amalgamated zinc having a conducting wire soldered to it, and placed in an earthen jar containing weak sulphuric acid, we find on making contact and completing the circuit, that we have a source of heat by which platinum wire may be set on fire. But in the body to be heated, we find that certain electrical conditions are necessary; we find that a chain constructed of alternate links of platinum and silver (the latter a better conductor of electricity than the former,) made to form part of a galvanic circuit, will be unequally heated. The platinum links present a luminous appearance, while those of silver look like black bands beside the brilliant light of their companions. The better conductor allows the heat to run off, while the worse conductor affords resistance to the electricity passing through it. But there are also circumstances of an external nature equally important to the production of heat and luminosity by the voltaic battery. Did we live in an atmosphere of hydrogen, the same amount of voltaic force would not give us any ignition of the platinum, and a person experimenting under such an atmosphere, would have to employ a greater power to discover this voltaic force at all. If two platinum wires be arranged so as to ignite in the atmosphere, as stated in the foregoing experiment, and a jar be placed over each, the one jar containing hydrogen, and the other merely containing the surrounding air. On connecting the wires, the one under the jar with air, will become ignited, displaying both the phenomenon of light and heat, while the wire under the hydrogen jar will neither be hot nor luminous, and if the jar be reversed, the former bright wire will become cold and dark and the former dark wire hot and luminous. This fact shows that we are too apt to regard phenomena in a merely abstract light, instead of taking into account all the circumstances by which we are surrounded. This incapacity of platinum of becoming luminous in a hydroginated atmosphere is very important knowledge in respect to propositions that have been made to illumine mines. The light which the voltaic battery produces is the most intense of any that we know of. In reference to the Electric Light lately produced, there is nothing new but in the mechanical arrangement. The powers of voltaism for lighting, were fully investigated in Davy's time, although the battery was not so constant then as it is now. By using nitric acid, which is the best for lighting, it costs for a battery of 30 cells (by the expenditure of metals and acids) about 48 cents per hour, and there are other expences connected with it, which will make the cost about 75 cents per hour. This expense however produces a light equal to 1444 wax candles, a wonderful result—no doubt.—In the present state of its application for general illumination there are many difficulties which present themselves, but for producing intense light upon a given spot, there is certainly no objection to its immediate employment. In lighthouses it could be well and easily applied, and there are strong grounds for hope that our ordinary agents of light and heat, will yet be supplied by voltaic action.

Statics.

This is a branch of mechanics which but few practical men study, care any thing about, or know any thing about. This is not right as the study of it fits the mind to reason upon the minutia of the science of mechanics and therefore it should claim the attention of every mechanic.

Statics is that branch of mechanics, which treats of the relations that must subsist between the magnitudes, and circumstances of action, of forces, that they may be in equilibrium, and consequently, allow the bodies upon which they are impressed, when at rest, to remain at rest.

Bodies of known magnitude, are considered as composed of an indefinitely large number of small portions of matter, called material particles; so small, that the length of every line comprised within the limits of any one of them, is less than any length that we can assign.

The circumstances of action, upon which together with their magnitudes, depend the effects produced by forces,—on which would be produced by them, if not held in equilibrium by other forces acting at the same time, upon the same body,—are the points of the body at which the forces are applied, and the directions in which they act; which last are the same as the directions of the motions, which they would cause if the several particles were perfectly free, and acted upon singly and successively, by each of the forces which are applied to it.

A line in the direction of any force, drawn through the point of application of that force, we shall call the line of direction of that force; and any line parallel to this will be called simply the direction of that force: thus any number of parallel forces may all be said to have the same directions, but not the same lines of direction.

When a single force is impressed upon a material particle, it tends to move it in the direction in which it acts; and this tendency can only be counteracted by an equal and opposite tendency, which, in the case of equilibrium, with no other exterior force acting upon the same particle, must be produced by the forces, which are called molecular, with which the several particles of a body strive to hold each other invariably in the same positions; or rather, with which they strive to replace each other in their original positions, when slightly disturbed from them by the mutual action of these molecular forces, is to transmit as it were, the action of the force impressed upon any one particle to the particles adjacent, and from these again to others beyond, in such wise that the same effect is produced at whatever point in the line of its direction any force is applied: thus two men pulling at the opposite ends of a rope, or pushing at the opposite ends of a rod, must pull or push with equal forces to produce equilibrium, other forces being supposed to act, whatever be the length of the rope or rod."

Sickly Plum Trees.

The Pennsylvania Cultivator says that salt freely applied to the surface of the ground around the tree, over an area as wide as the extent of branches—strong brine applied as a wash to the trunk and limbs, and pulverized salt introduced into the trunk of the tree by boring into its centre, and then plugging it up—all or either of them are said to be certain means of restoring plum trees that are in a sickly or enfeebled state—trees that are troubled with the curculio bug—or trees that have evidence of diseased sap, black warts—into a healthy and luxuriant condition. The plum is naturally a marine tree, and it is surprising how much salt it will assimulate and thrive upon. Try it.

Health of Children.

The following extract from Dwight's Father's Book will be found both instructive and pleasing, and endorsing in the fullest extent Lord Brougham's sentiments on "Early Habits."

Rising early is a habit of high importance to fix in children; and in forming it, there is far greater facility than in other cases. There is a natural propensity in children generally to early rising, which needs only to be gratified and encouraged. They usually retire to bed some hours before their parents, and at daylight, or at least sun-rise, are generally awake, and anxious to rise. Many of them are actually bred up with difficulty to the habit of taking morning naps, which, when once formed, generally prevail through life. Let his father deny himself so far as to retire early, and become an early riser also. His health, enjoyment and usefulness, he may depend upon it, will be preceptibly benefited. And this may be connected with another preventive of disease—active employment. The morning is the season for activity; the frame, invigorated by repose, is prepared for exertion, and motion gives pleasure. The pure atmosphere, so much sweeter and more exhilerating than the air of a confined chamber, has been prepared to be breathed; and, like all Nature's medicines, it is superior to any which science can produce. Early rising and early exercise might more properly be called food than medicine, as they are designed for daily use, and to protect us from disease rather than to remove it. Every thing, except mere sloth, invites us, to the most favourable season for exercising the frame, as well as for making useful impressions on the mind and heart, and whoever tries to conduct the education of his child independently of this practice, will lose some of the most favorable opportunities.

Sinfulness of Inoculation.

When in 1718 inoculation for Small-pox was adopted in this country, the greatest uproar was stirred up against it. Not only was the whole medical profession opposed to it, but further, as Moore tells us, in his amusing work on inoculation "some zealous churchmen, conceiving that it was repugnant to religion, thought it their duty to interfere. They wrote and preached that inoculation was a daring attempt to interrupt the eternal decree of Providence. Lord Wharncliffe, in his life of Lady Wortly Montague, says "that the clergy descanted from the pulpit on its impiety. A Mr. Massey preached in 1722, in St. Andrew's Church, Holborn, that all who infused the variolous ferment were hellish sorcerers, and that inoculation was a diabolical invention of Satan." And one of the Rectors of Canterbury, the Rev. Theodore de la Eaye, perhaps exceeded this in a sermon preached in 1751, for he denounced with horror, inoculation as the offspring of atheism, and drew a touching parallel between the virtue of resignation to the divine will, and its practice.

[There are men who are not preachers in the pulpit, but out of it, who at the present day are characterized not by religious hostility to this and that discovery, but a more base motive, viz. selfishness.

Effect of Trifles.

Mohammed, when pursued by his enemies, ere his religion had gained a footing in the world, took refuge in a certain cave. To the mouth of this retreat his pursuers traced him; but when they were on the very point of entering, their attention was arrested by a little bird darting from an adjoining thicket. Had it not been for this circumstance, the most trivial that can well be conceived, which convinced them that here the fugitive could not be concealed, Mohammed would have been discovered, and he and his imposture would have perished together. As it was, he effected his escape, gained the protection of his friends, and by a most artful course of conduct, succeeded in laying the foundation of a religion which now prevails over a large portion of the world.

The life of David, is stated by tradition, to have been preserved from Saul, by nearly the same means—a spider weaving her web across the mouth of the cave. How careful all should be in explaining the doings of Providence. We often are presumptuous for what we think right.

Chinese Hemp.

French agriculture has recently been enriched by a very important new production.—This precious article is the Chinese hemp, the seeds of which were imported into France by M. Stier, a member of the French embassy in China and has been cultivated and naturalized at Marseilles by M Garnier Savatier. This hemp, the reproduction of which is now secured by the seeds which have ripened in the best possible manner, grows to a height of twenty-four or twenty-five feet, the stalk is from 5 to 6 inches in circumference, each plant produces from two to three kilograms of seed, and furnishes thread enough to make a yard of superb lawn, superior in beauty and quality to any obtained from French materials. The cultivation of the plant in the south of France will be the more precious to the country as a climate of the temperature of that region is necessary for its fructification, and its seeds will find a ready sale in other countries where the seeds will not ripen, but where the filaments may be produced. The South will thus have a double advantage.—Some specimens of this plant were exhibited at the Agricultural Show at Montpelier. The height of it was from twenty to twenty-two feet.

Ornaments in Brass.

Thin ornaments in relief are first modelled in relief in clay or wax, upon a flat surface. A sand flask is then placed upon the board, over the model, and well rammed with sand, which thus takes the impress of the model on its lower surface. A second flask is now laid on the sunken impression also filled with sand, to take the relief impression from it; this is generally termed the black mould. The thickness of the intended cast is then determined by placing an edging of clay round the lower flask, upon which edging the upper one rests, thus keeping the two surfaces at the precise distance from each other, that it is intended the thickness of the casting shall be. In this process, the metal is economised to the greatest possible extent, as the interior surface or back of the casting, is an exact representation of the relief of the subject, and the whole is thus made as thin in every part as the strength of the metal permits.

Friction Matches.

Letters from St. Petersburg state that in the thirteen northern provinces of Russia and Europe more than 32,000 houses have been destroyed by fire during the past year, while ordinarily in these provinces not more than about two thousand, or two thousand five hundred a year are burned.

The government has ascertained that, for the most part, these fires, which have caused a loss of twelve millions of rubles, are the result of crimes, and that they were lighted by friction matches. In consequence of this, the Minister of Police has made a decree that henceforth no factory of these matches be established within cities, and nowhere else without special license from the higher authorities.

Cowper's Home.

Cowper's house at Olney, is still standing in the same ruinous state so humorously described by the poet; his parlor is occupied as a girls' school. The summer-house in the garden, where he used to sit conning his verses, also remains, its walls covered with visitors' names. His residence in the neighboring village of Weston has been much altered, but it is still beautiful with a profusion of roses in front.

A Curious Case.

A gentleman experimenting near Waltham, England, on the new electric light, happened to touch the conductor with a part of his hand where there was a slight flesh wound or scratch. The arm swelled, tumors broke out all over his body and limbs and in spite of every effort to save him, he died.

Precise Enough.

In a recent case tried in Cincinnati to establish the precise time of the death of a man who with his wife, were blown up by a steamboat explosion, an Irishman was put on the stand who was also blown up, but escaped.—Said the attorney to him, 'When did you last see the gentleman alive?' "Sure, your honor, as me and the stovepipe were going up, we met him coming down."

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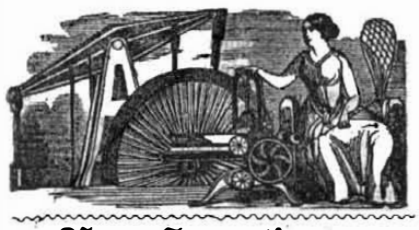


New Inventions.

Improvements on Fire Engines.

Messrs. Peake & Kells, of the city of Hudson, in the county of Columbia, N. Y. have constructed a new Fire Engine, the parts of which are combined and arranged in a different manner from any now in use, or that have come under our observation. The bed plate is cast to receive the cylinders of the pumps placed lengthwise across the box, opposite one another. The two pistons of the pumps are connected by one stem or spindle which is traversed or moved by a small arm connected to and projecting below the main longitudinal shaft. When the arms of the engine are operated, the arm that projects below and which works the pistons of the pumps has an oscitlating motion. The valves are placed in the inner ends of the cylinders, where the stem of the pistons extend out, and may be said to be placed in the reverse position from those engines with the upright cylinders.

A trial of this engine has given both the makers, those who worked it, and those who saw it operate, a very favorable opinion of its qualities. Its compactness is self-evident, and one good thing about it is this, that the truck can be built to use without any inconvenience, much larger wheels than any of what are called "the piano engines," now in use.

Printing Improvement.

The Ohio State Journal says: "Mr. James Armstrong, the foreman of our job office, has brought out an invention which promises great utility to the craft. It is an improvement in the mode of locking up forms, by which the bevil side and footstick, as well as shooting stick, quoins and mallet are all dispensed with. In lieu of those, he supplies two parallel metallic bars at the side and foot of the form, furnished at suitable distances with right and left screws, operated by a small hand wrench. The affair is a very simple one, when once seen in operation. Its advantages are economy in time, as well as in expense of furniture and quoins, greater facility in registering, economy of space between the chase and the matter, and general convenience. It is equally well adapted to the smallest card and heaviest broadside. Mr. A. has taken measures to secure a patent."

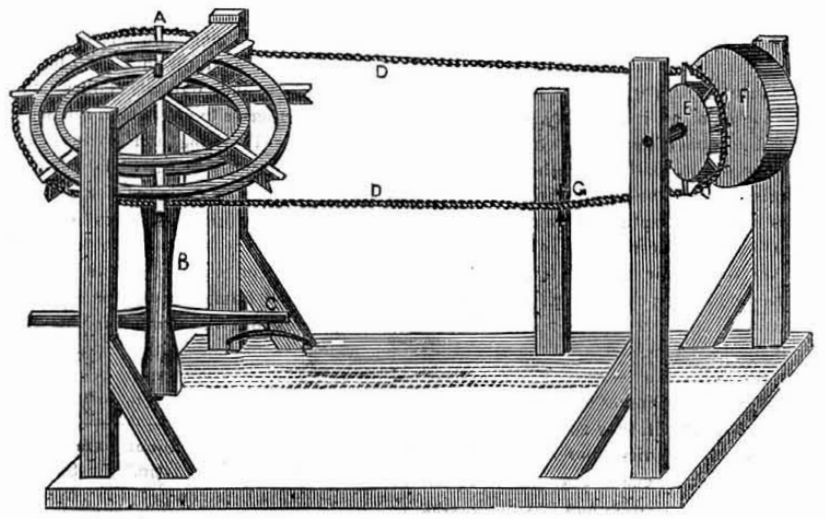
It may save Mr. Armstrong some expense to know that the locking up of forms by nuts and screws is not novel. The forms of the New York Sun are all locked up by screw and wrench.

Improvement in Steam Engines.

Mr John Varley, Engineer, residing in Bury, County of Lancaster, England, has made the following improvements, as we learn by the London Patent Journal. The improvements consist in having the steam and exhaust valves in the bottom and cover of the cylinder, so as to open directly into the cylinder. Cavities are formed in the cover and bottom of the cylinder or in raised boxes cast thereon in which the valves are placed, two being fitted to either end, one for the entrance and the other for the exit of the steam. The valves which the inventor uses are the double conical kind, the stem of which passes through the stuffing box in the cover for the purpose of actuating it. In the cover of the cylinder, the lower seating is fitted into the thickness of the metal next the interior so that the lower valve when down, forms part of the under surface of the cover; the other part of the valve on the same spindle is higher up by the depth of the steam passage which enters between them. The exit valves are similarly constructed, each being respectively connected with the steam pipe and passage to the atmosphere, or to the condenser. These passages are cast in opposite sides of the cylinder, running from end to end, and communicating with the steam and eduction valves, at either end of the cylinder—both ends being similarly furnished—one passage connected with the boiler, the other with the condenser. Small passages lead from the cylinder above the valves, so as to maintain their upper and under surfaces in equilibrium, while the space between the two discs on the same spindle or stalk being either in connection with the steam or the condenser, they are easily moved for the admission and release of the steam. The valves are actuated by means of a rotating horizontal disc placed below the cylinder, having a cam on its surface, at the circumference, on which a roller runs supported from one end of a lever, the other end being connected to the spindle of the induction valve. A similar roller is in connection with a rod passing up the side of the cylinder, from which an arm is connected to the stem of the upper induction valve. The eduction or exhaust valves are similarly actuated by a cam on the other shaft, the whole of course being arranged to open and close their respective valves at the proper time, whether for working the steam expansively, or without the cut off. The different cams are worked by suitable gearing with the main shaft.

The equilibrium valves are not new, and the manner herein described for working the valves, is equivalent to other plans for a like purpose, and the inventor does not claim those things as new, but confines himself to the peculiar manner of placing the valves in the cover and bottom of the cylinders. We know not whether this plan will be better than the old steam chest and side passages or not, it will take a fair trial to test its merits, but novelty it has undoubtedly, although Mr. Wilder of this city recommended last year the placing of the valves in the bottom and cover of cylinders, as a great means of preventing breakage. Mr. Varley has not viewed his invention in that light, but to avoid the common passages between the valves and cylinder—it may accomplish more than that if Mr. Wilder is correct.

BERTHOLF'S HORSE POWER.



This is a horse power of H. W. Bertholf of Sugar Loaf, Orange Co., N. Y. for which he has taken measures to secure a patent. It is very simple—any person can construct one for himself after seeing this. It is not liable to get out of order and it will not cost much to construct it. Four strong posts like those represented above, are set up permanently in a shed next to the barn, exactly between two of the posts, is erected a strong upright shaft B. This shaft has an iron centre below and one above in a cross beam to allow it to revolve in its bearings which may be boxes with antifriction balls, especially the lower one A is a radial arm wheel secured to the shaft B above, and the arms are notched at the extremities to hold the chain D D, and prevent it from slipping. This chain communicates the power from the main shaft to a horizontal notched wheel E, which can drive a thresher, or grain separator by a band passing over the pulley F. G is a post with an anti-friction pulley on it, to guide the chain on the wheels. The power is applied by harnessing the horse or horses to the lever G of the main upright shaft. They walk round between the two posts, thus giving motion to the whole machinery. All the parts may be made of wood except the axis of the shafts and the chain for a stationary horse power. Grooved sheaves and a round band may answer as substitutes for the chain and the notched pulleys.

New Invention for Sewerage.

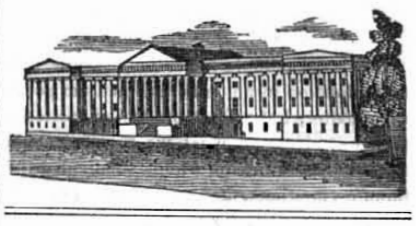
Daniel Richards, Esq. one of the present members of the Board of Aldermen of this city, has invented a new kind of Sewer, a description of which is to be seen in Dr. Goodrich's office in the City Hall. The principal advantage of this sewer seems to be that the gas and water pipes can be placed in them, and thus save the city much expense and labor.

It is singular that some inventors direct the energy of their minds to the very antipodes of that which appears to us as the most important to themselves and others. Now had a member of our City Council invented an apparatus that would keep our streets clean and fordable in wet weather, he would be entitled to the fame and the name of philanthropist. Such an apparatus would save to the city in direct outlay, perhaps not less than $200,000 per annum, and add 5 years to the average duration of the city life. And as a general saving it would perhaps be worth to our whole city about $2,000,000 per annum. Some people may think this an extravagant calculation, but when we consider how many doctors' bills would be saved, how much clothes saved from the brush, and the time spent in brushing them, besides the blacking and brushes and all that, it will be found below the mark. Good sewers are good things—no person will doubt that, but the other is more necessary at present, and it is to be hoped that Mr. Richards will direct his inventive faculties, which are not small, to this subject.

Percussion Caps.

The detonating lock for guns, as a substitute for the flint one, is the invention of a Scottish clergyman named Forsyth. His plan was to prime with percussion powder and explode it by the hammer, in the same way that some guns employ it yet. The percussion cap was an improvement upon the original invention and for general use has superseded it.—The percussion cap we believe is a French invention, but a machine for making caps, invented by a Mr. Wright, a private in the American army, is allowed to be the best ever invented for that purpose. It is used in the United States Arsenal at Washington and manufactures them at the rate of about 2000 per minute, attended by one person. The machine occupies a space about 3 feet by 4. A sheet of copper is placed on a table and carried below the dies, which form the caps and places them around the edge of a charging disc, into holes. This disc has a rotary motion and carries the caps under a cup containing the percussion powder, from which drops, with singular regularity, a quantity for a charge, into each cap. Progressing round at another point, is a very fine punch, which completes the job of charging by pressing home the powder—and at a third point a small instrument throws the caps from their lodgement, tosses them into a funnel, and through which they fall into a drawer beneath.

The St. Louis Republican notices a Steam Guage invented by Mr. A. S. Lyman, of that city, which tells the pressure of the steam and the state of the water in the boiler.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

To Francis C. Goffin, of Philadelphia, Pa. for improved Door Lock by a combined Key and Guage—also a Thief Detector. Patented March 6, 1849.

RE-ISSUES.

To John Ericsson, of New York City, for improvement in Propelling Ships. Patented Dec. 31, 1841. Re-issued March 6, 1849.

To Pearson Crosby, for improvement in Saw Mill. Patented Nov. 3, 1841. Re-issued March 6, 1849.

To Benjamin W. Bean, of New York City, for Machine for Sewing Cloth. Patented Mar. 4, 1843. Re-issued March 6, 1849.

To William Trapp, Jr. of Dryden, N. Y. for improvement in Barrel Machinery. Patented Oct. 1, 1845. Re-issued March 6, 1849.

DESIGN.

To Henry Fay, of Troy, N. Y. for Design for Stoves. Patented March 6, 1849.

[The above is part of last week's list of Patents, omitted for want of room. The list for this week had not arrived from the Patent Office, when we went to Press.

To Remove Stumps.

Procure a dry red-elm lever, about twenty feet long, and about six to eight inches in diameter,—also, a good stout log-chain, with two yokes of oxen; this is all the machinery necessary, except a good ox-driver. The mode of operation in thus; wrap the chain around the stump a little above the ground, and make what is called a log-hitch; lay the lever horizontally on the ground, the large end next to the chain and against the stump make the loose end of the chain fast to this end of the lever, drawing it tight against the stump; the cattle are hitched to the small end of the lever and driven around the stump in a circle, of which the lever is the radius. One revolution of the oxen around the stump will generally twist it out of the ground, or loosen it so that it may be hauled out by the oxen when hitched to the log-chain around the stump.—But should not the power of this machine be sufficient to move the stump, the side roots may be uncovered and cut partly off, and the stump will then be more easily removed.

By pursuing this plan in the spring of the year, when the ground is loose and mellow, the stumps are more easily removed; and by persevering in this method two or three years your fields will be cleared of these obstructions to neat and economical farming.

This extract is taken from the Ohio Cultivator, and is a very simple stump machine.—The ingenity of our farmers in different places lead them to adopt various plans for the easy removal of stumps, and there are some excellent stump machines in the Northern parts of this State. The above however is both a good plan and an excellent hint to our farmers at this season of the year.

To Prevent Accidents by the Breaking of Axles.

Mr. Lyman Gouch, of Springfield, Mass., has invented a plan to prevent accidents from the breaking of railway carriage axles. The invention consists in confining the axle in a long light cylinder, strapped around the axle and revolving with it.

Electro-Magnetism.

Professor Page, who recently obtained from Congress an appropriation of $20,000, to enable him to continue his experiments in testing, in Washington city, the applicability of the electro-magnetic power to machinery, has constructed an engine, by which a cylinder printing press is driven as well as if steam was the moving power.

A paper however was printed by such an engine 8 years ago.

Anti-friction roller boxes are now being introduced on the English locomotives.

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NEW YORK, MARCH 24, 1849.

Patents and Patent Laws.

Our readers will see by the proceedings of the National Convention of Inventors, that they requested three gentlemen of high legal attainments to draft a code of Patent Laws.—There is certainly some anomaly in this resolution, and the other one, appointing a committee to urge the appointment of any man but a lawyer to the post of Patent Commissioner. To show how lawyers make mistakes in drafting laws, we quote the following from the Report of Mr. Farally, from the Committee on Patents, reported in January 1848, and up before Congress last session to amend the Patent Laws.

"Sec. 2. And be it further enacted, That hereafter, on filing a Caveat for any specific invention, the Caveator shall make oath to his alleged invention or discovery, as in the case of an application for letters patent, and that no portion of the duty required by law to be paid into the treasury on applications for patents, shall be withdrawn or refunded to the applicant on any application entered in the Patent Office, after the passage of this Act."

Now, is this section sense or nonsense?—What construction would a man acquainted with the Patent Laws put upon it? Why just this. As the Caveator pays $20 for a caveat, and $10 when he applies for the patent, so no portion of the money (it should not read duty) paid on the application for the patent could be withdrawn. Now that is the law at present, and so plain that any wayfaring man may understand it. No portion of the ten dollars can be withdrawn but the twenty can. Probably the Committee on Patents might construe it differently, and so might the Commissioner had it passed, but we have given the explanation of the Committee's English. We might present quite a number of curiosities in the shape of proposed amendments to the Patent Laws, concocted and suggested by selfish and interested parties. We shall take occasion to do so from time to time, in order that the public may be aware of the chicanery going on at the Capitol. One section more of the Committee's amendments and we are done.

"Sec. 12. And be it further enacted, That the Commissioner of Patents, be, and he is hereby, authorised to publish monthly in the Journal of the Franklin Institute of the State of Pennsylvania, a description of all the Patents granted at the office, accompanied with such plates and illustrations of the more important inventions, as he and the principal Examiners may designate and direct. Provided that the expense shall not exceed six thousand dollars per annum, to be paid out of the Patent fund, and that the Franklin Journal furnish monthly twelve hundred and fifty copies of their Journal containing said publication for the use of the Patent Office."

Now was not that a sublime and generous amendment proposed to the Patent Laws by the grave seniors of the Committee of Patents. Perhaps it would have passed too, but for the determined struggle of another claimant to get a bite at the Patent funds. This was a committee of one or two, we don't know which, from the "Mirror of the Patent Office," a poor panic stricken sheet, that sprung up and could boast of a green old age when it was a few months old.

We like to see true knowledge disseminated among the people, but we have to lament the great change that has taken place in the minds of too many respecting what patriotism consists of now, from what it did in the days of yore. Our forefathers considered it an act of patriotism to endure and suffer for their country, but there are too many men now distinguished by that kind of patriotism which makes their country suffer for them. The Scientific American asks no favors. We are free—yes free, to tell the truth without falterings or fears. Our trust is in the people—unswerved by clique or faction, being confident that truth always triumphs at last—and no bondman dare always speak the *Truth*, and especially one who would sell his teeth to keep him from starving.

Plagiarism.—Literary and Mechanical.

The Londonderry Standard, of March 11, 1848, in an obituary memoir of Dr. John Paul of Carrickfergus, Ireland, makes the following statement: "In Stapfer's great work, 'Institutiones Theologiæ Polemicæ Uuniversæ Ordine Scientifico Dispositæ,' (Tiguri, 1752,) the *very propositious* and *many* of the reasonings which Edwards has so successfully employed in his work on 'Free Will,' are laid down *totidem verbis*. The obligations of Edwards to Stapfer amount almost to a literal borrowing, in many instances of the propositions and arguments of the latter *in his own words*, without any specific acknowledgment though the genius of Edwards gave to those abstractions an expansion and an application essentially his own." Stapfer was a Swiss Professor.

It is not long since the same charge was made in England against Paley, who is said to have taken his most celebrated work from a Dutch writer and published it as his own, nearly word for word. This charge was boldly promulgated against the celebrated English divine in the columns of the Atheneum, and so far as our knowledge extends, it has not been contradicted. We believe there are few who are able to contradict it, and no men are perhaps less qualified for the task than men merely devoted to literature.

We believe that neither Edwards nor Paley were plagiarists. The Rev Greeville Ewing, of Glasgow, had a work on theology ready for the press when Professor Dwight's of America was issued, and so similar were its views and language to the manuscript of Mr. Ewing that the latter had to renounce the publication of his, although it had cost him many years of mental and physical toil. This shows that minds similarly constituted, in the examination of like subjects, arrive at, or nearly, the same conclusions—although they may be separated like these two eminent men, by the broad ocean.

It is no uncommon thing for men living remote from one another, to invent and construct machines in every respect alike. There are a great many machines in the Patent Office exactly like one another, invented by men living widely distant. It is not long since that we saw two models of a certain machine, invented by two different persons,—the one residing in Connecticut, the other in St. Louis, Missouri. There was not an iota of difference between the two—yet the inventors never heard of nor saw one another, and their inventions were kept perfectly secret until displayed before us in the same week. There was no plagarism in this—and no person could or would charge it on either of the individuals referred to. We have two models at present in our possession exactly alike, and invented by two different persons living 1000 miles apart. Both of the inventions are old, but we are positive that the invention was original to the reinventors—that they believed it new till informed by us to the contrary.

We could multiply case upon case to prove that like productions, literary and mechanical, by different individuals living distant either in time or space, should not be denounced, as they are too ready to be, "*plagiarisms*."

Blanchard's Turning Machine Case.

This case, which we noticed last week, was decided upon by Judge Kane on the Report of the Commissioner, W. W. Hubbell, Esq. who we had previously noticed as appointed to examine the machines, a task for which he is eminently qualified, and report on the same to the court. He reported the respondent's machine to have a perpendicular bar with a double edged cutter thereon, which moved up and down in a straight line and cut the block both in its ascent and descent; its cutting motion being rapid and independent of the slow tracing of the friction point, and that with this were combined the longitudinal and transverse motions to communicate the form of the model.

This report and the decision of Judge Kane (which we will publish at some future time,) made upon it, is important information to many of our citizens.

Great Telegraph Patent Case.—Morse vs. Bain.

Our readers well know that the Commissioner of Patents rejected *a* claim of Mr. Alex. Bain to a patent, as it *interfered* with an application of Mr. Morse. Our readers also know that an appeal was taken from the decision of the Commissioner by Mr. Bain, and that we have taken strong grounds against the decision of Mr. Burke. The appeal was recently argued for a number of days before Judge Cranch, Chief Justice of the District of Columbia, and he has at length decided as we predicted and emphatically asserted he would, viz. that "Mr. Bain was entitled to a patent," as claimed by him.

As this is a question of great importance to the public, we give below some extracts from the Judge's decision, which is a very clear and conclusive one

* * * "There cannot be a patent for a principle, nor for the application of a principle, nor for an effect. Two persons may use the same principle and produce the same effect by different means, and without interference, or infringement, and each would be entitled to a Patent for his own invention. Godson, 63, 68, 74.

So in the present case, although the forms used by both applicants are the same, and the subject the same yet as the effect is produced by means which appear to me to be so different as to prevent an interference, the question of priority of invention does not arise.

It is not a case, therefore under the 5th Section of the act of 1836, but under the 7th section of the same act, so that each of the applicants may have a patent for the combination which he has invented, claimed and described in his specification, provided he shall have complied with all the requisites of the law to entitle him to a patent.

If this were a doubtful question, I should still think it my duty to render the same judgment, so as to give Mr. Bain the same right to have the validity of his patent tested by the ordinary tribunals of the country, which Mr. Morse would enjoy as to his patent, and finally, to obtain the judgment of the Supreme Court of the United States upon it. For if the Commissioner and the Judge should reject Mr. Bain's application for a patent, the decision would be final and conclusive against him unless he could obtain relief by a trial in equity under the 16th Section of the act of 1836, and the 10th section of the act of 1839 which, it is said is doubtful.

I am, therefore, of opinion and so decide, that Samuel F. B. Morse is entitled to a patent for the combination which he has invented, and claimed and described in his specification and drawings.

And that Alexander Bain is entitled to a Patent for the combination which he has invented, claimed and described in this specification and drawings—provided they shall, respectively, have complied with all the requisities of the law to entitle them to their repective patents. N. CRANCH."

This is valuable information for our inventors and valuable information for the Patent Office. That body has assumed too much of the powers of a supreme legal Court, in deciding upon interferences, and has caused many inventors much trouble and expense, and prevented many from securing patents who were rightly entitled to them—they are too apt to judge of the effect produced, as clashing in inventions, not of the way of producing those effects. We might instance a number of cases to prove the truth of this statement, and the above is one, which but for the unflinching courage of Mr. Bain and the means to carry up the appeal, we would have known nothing about. We hope that there will be fewer cases of this kind in future.

Power of Expansion in Ice.

The general law is, that all bodies are expanded by heat, and contracted by cold. If it did not, ice, as it forms, would sink to the bottom, and our streams freeze solid. A correspondent of the Montreal Herald, lately experimented on the expansive powers of freezing water, with the following result—

He filled a 24 lb. shell (the diameter of which was 5.547 inches, and about 3-4 of an inch in thickness) with water, and plugging up the whole securely, exposed it to the action of the frost, during one of our keenest nights this winter. In the morning he found the mighty power had divided the iron mass into four sections, one of which, weighing 4½ pounds, was thrown 20½ yards, and must have passed upwards, over a wheel behind which it had been placed—the ice remaining in the section left behind, as if it had been pounded.

Palpitation of the Heart.

Professor W. Parker, of the New York College of Physicians and Surgeons, at a recent clinical lecture, examined a man who was troubled with palpitation of the heart. The report states that no physical signs of organic disease of the heart could be detected; and hence we may conclude, says Professor Parker with much certainty, that all the cardiac disturbance is purely functional, depending on derangement of the digestive organs; and this organ depending on the free use of tobaco, tea, and coffee, and confinement within doors.

Curious Spring at St. Francisco.

A letter from California, recently received, states that a spring has been discovered near San Francisco, which possesses the peculiar property of coloring leather to a beautiful jet black. The leather to be colored is allowed to remain in the water for about six days.

The water must be strongly impregnated with iron, and the leather which it has turned black must have been dressed with sumac, oak, or some astringent containing tannin. It probably could not turn white alum leather black.

Bed Bugs.

A writer in a late English Scientific Journal suggests a plan for preventing the attacks of these insects. As they are not provided with apparatus to enable them to climb hard and smooth surfaces, he recommends that the posts of the bedstead be terminated by inverted cones of glass which present a surface that these little marauders cannot traverse.

To Preserve Natural History Specimens.

To preserve the skins of animals for exhibition, arsenical soap has been found to be the most perfect guard against vermin, and is prepared in the following manner, viz.; camphor, five ounces; arsenic in powder, two pounds; white soap, two pounds; salt of tartar, twelve ounces; chalk in powder, four ounces. Rub this thoroughly over the inner surface, and afterwards stuff the animal for the case.

Remedy for Asthma.

The Maine Cultivator says that an individual who has suffered much from asthma, and who had in vain sought relief from regular physicians, wishes to give publicity to the following remedy: Procure common blotting paper, and thoroughly saturate it in a solution of nitre (saltpetre), and let it be carefully dried by the fire or exposure to the rays of the sun. On retiring at night, ignite it, and deposit burning, on a plate or square of sheet iron or zinc in your bedroom. In many cases, it is said, this has enabled persons painfully afflicted to enjoy their rest.

We are indebted to Anson J. Stone, Esq. of old Cambridge, Mass. for a Catalogue of the officers and students of the University at Cambridge for 1849.

Back Volumes of the Scientific American.

A few more copies of complete sets of vol. 3 of the Scientific American may be had at the office, either bound or in sheets. Price neatly bound $2 75, in sheets suitable for mailing $2. Send in your orders early if you desire them filled for we have but a few more opies left, and the number is growing less every day.

Our London Patrons.

We are happy in being able to inform our English patrons that such arrangements have been completed with the London Patent Office that the Scientific American may hereafter be found there. Messrs. Barlow & Payne are agents at 89 Chancery Lane, and will receive remittances on account of the Scientific American from those who may desire to subscribe.

Terms—3 dollars per year and postage paid out of the United States.

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Galileo.

(*Concluded.*)

Galileo was scarcely free from the fangs of the Inquisition, than his innate love of truth, and abhorrence of a system which set the erring judgement of men superior to the dictates of reason and phenomena of nature, prompted him to repeat his offence. In 1618, he communicated to the archduke Leopold his theory of the tides; and, in doing so, alluded, in sarcastic terms, to the proceedings of the church. The same spirit pervaded others of his writings. In 1632, he published a work, under the title of "The System of the World of Galileo Galilei," demonstrating the Copernican theory. To shield himself from Inquisitorial persecution, he adopted a system of dialogue, in which three assumed characters are exhibited in debate upon the respective systems. One of these takes up, and defends the system of Copernicus; another suggests doubts and difficulties; and the third stands up for the system of Ptolemy. This work attracted great notice, and the church having committed itself by denouncing the new doctrines, at once laid on its strong arm to crush the audacious innovator on its dogmas.

Proceedings were immediately adopted to summon Gallileo again before the Inquisition. Representations were made through the Tuscan ambassador at the papal court, to obtain a written statement of the charges, that Galileo might prepare for his defence. This, however, was refused, and a summons was soon issued for him to appear at Rome. At this time a contagious epidemic was raging in Tuscany, and a strict quarantine was enforced at Rome. Representations were made of the miseries which a journey under these circumstances would impose upon Galileo, who at the time was suffering from advanced age and ill health. Personal attendance was however peremptorily demanded. Some respect was certainly paid to the talents and infirmities of Galileo during the progress of his trial. He was allowed to reside in the palace of the Tuscan ambassador, and even permitted to visit the public gardens.

On the 22d of June, 1633, the Inquisitors assembled to pronounce sentence on the philosopher. From passages in the sentence, it is suspected that Galileo, was put to the torture. This sentence itself is too long for insertion; but the following extract will convey an idea of its nature.

"By the desire of his Holiness, and of the most eminent Lords Cardinals of this supreme and universal Inquisition, the two propositions of the stability of the sun and the motion of the earth were qualified by the theological qualifiers as follows:

1st. "The proposition that the sun is the centre of the world, and immovable from its place, is absurd, philosophically false, and formally heretical; because it is expressly contrary to Holy Scripture.

2d. "The proposition that the earth is not the centre of the world, nor immoveable; but that it moves and also with a diurnal motion, is absurd, philosophically false; and theologically considered, at least erroneous in faith.

"We decree that the book of the Dialogues of Galileo and Galilei be prohibited by edict; we condemn you to the prison of this office, during pleasure, we order you for the next three years to recite once a-week the seven penitential psalms."

Had Galileo stood up boldly in defence of his opinions, he might not perhaps have disarmed the persecuting spirit of the Inquisitors, but he might have confounded their accusations, and either stood the free champion of truth, or fallen the proud martyr of science. He had observation and experience on his side against which no one could shut his eyes; he had arguments to advance which could neither be eluded nor contradicted; and more, he had the precedent of the church itself acknowledging, and in a manner patronizing the very opinions for holding which they were persecuting him. At the very moment that he stood clothed in penitential sackcloth before the bar of the Inquisition, the work of Copernicus (himself a catholic priest), dedicated to the Pope, stood in the library of the Vatican; and in the very year of Galileo's first persecution, a work was issued by a Carmelite monk at Naples, upholding the same opinions, and its author never called in question. By confessing to the charges of the Inquisition, Galileo in a manner justified its proceedings. And, however detrimental it may have been to the interests of science, however degrading to the spirit of humanity, we must look upon the ancient philosopher with a kindly eye. He lived in a time when the mind of society was bound down in reverence and fear to the dictates of the church. His expanded mind might in its vigor have braved persecution, and even death, before perjuring himself in the eyes of the world. But old age had laid its withering hand upon him; physical suffering had broken down his frame; and, dreading to sigh out his few remaining days in the lonely dungeons of the Inquisition, he quailed before the dread power of that fearful institution, and passively renounced, in words, those opinions which he knew to be true, and which the progress of science has since demonstrated. On his knees, and with his hand upon the Scriptures, he solemnly abjured the opinions he had taught.

"With a sincere heart and an unfeigned faith, I abjure, curse, an detest, the said errors and heresies, (viz., that the earth moves, &c.) I swear that I will never in future say or assert anything, verbally, or in writing, which may give rise to a similar suspicion against me.

"I, Galileo Galilei, have abjured as above with my own hand."

Rising from his knees, Galileo, it is said, stamped with his foot upon the ground, and whispered to a friend, "It does move though."

Immediately on the ceremony being concluded, Galileo was conducted to the prisons of the Inquisition. The abjuration and sentence were publicly read to the principal universities. After four days' confinement, the interest of the Duke of Tuscany procured his liberty to reside under surveilance in the house of the Tuscan ambassador, from whence he was shortly removed to the palace of the archbishop Piccolemoni at Sienna. Here he resided six months, and was kindly treated; he was then permitted to return to his own home, near Florence; still, however, under restraint. Shortly after returning home, Galileo suffered great affliction from the loss of his favorite daughter. From 1634 to 1638, during nearly the whole of which time he suffered greatly from ill health—every application for a remission of his sentence was rejected.

In 1638, he obtained leave to visit Florence, for the benefit of his health; but under such strict terms, that he dared neither visit his friends nor admit them to his house, and required even a special order to be allowed to attend mass. From 1633 to 1638, Galileo, who applied himself as closely to study as his health would permit, composed his "Dialogues on Local Motion." So fearful were his enemies that the true spirit of the philosopher might again break out, that a licence was not granted for its publication, and it had to be printed in Holland.

About 1636, Galileo discovered the moon's diurnal and longitudinal liberation. This was his last telescopic discovery. He had for years been afflicted with disease in the right eye; in 1637, his left was also attacked, and in a few mouths the bodily eyes of the philosopher were darkened forever. After publishing his Dialogues on Motion, he renewed his attempts to introduce his system of finding longitude at sea. He made offers to the Dutch government, who appointed commissioners to investigate the subject. This correspondence ended in nothing. Galileo was presented with a golden chain as a token of respect; and after his blindness, one of his pupils undertook to arrange and complete his calculations and observations. All parties engaged in this matter died before it could be brought before the world. This, however, is the less to be regretted; for the method proposed has never yet been found answerable to the desired purpose.

After Galileo had become blind, the Inquisition exercised a little more lenity towards their victim. Many eminent men of the day visited him, amongst whom was our countryman, Milton. He projected a continuation of his Dialogues on Motion; but, while preparing it, he was seized with his last illness, and in two months the spirit of the injured philosopher was removed from the enmity of his persecutors.

Not content with striking him down while living, the vengence of the Inquisition followed Galileo even in death. His right to make a will, and of being buried in consecrated ground, was disputed; and although these were withdrawn, his friends were prohibited from erecting a monument over his remains, and his body lay in an obscure corner of the church. In 1737, his body was exhumed and re-interred under the splendid monument which now covers it. On this monument is a bust of Galileo, and figures of geometry and astronomy. His house at Arcetri, about a mile from Florence, still remains, an interesting relic to lovers of science.

Lowell Machine Shop.

Messrs. Munn & Co.—I see in your last paper a short article headed "A Great Machine Shop," stating that the Lowell Machine Shop can furnish machinery complete for a mill of 600 spindles in three months. I presume you made a mistake in the number of spindles, for it should be 6000 spindles, and I think 8000 would not be far out of the way. I presume that you do not know the extent of business done in the Lowell Machine Shop, nor indeed can any one know until they visit it, and even then it is doubtful whether they find all the holes and corners that are filled with machinery. In addition to their cotton machinery, they are building locomotives, stationary engines, tools of all descriptions, and in fact all kinds of machinery now in use in this section of country. They have employed from six to seven hundred hands for the last three years.

In addition to the present shops they have the foundation laid, and wheel pits and penstocks in for another shop, to exceed any thing of a machine shop in magnitude in this country. It is to be 400 feet long, 160 wide, 3 stories high, covering nearly 1½ acres of ground and in connection with this there is to be a Smithy 200 feet by 65 feet, 20 feet story.

Your Respectfully, * * *.

Lowell, March 5, 1849.

Our correspondent is correct in reference to our mistake, it was a typographical one. The Lowell Machine Shop has the name of being the greatest on this continent.

Salt in Syracuse.

The origin of the salt water from which the immense quantities of salt are made in Syracuse, is a vast bed of rock salt underground, which is gradually dissolved by water. The rain which rushes down the hills abont Syracuse, and soaks through to the region of Salt, comes up again in springs charged with this valuable article in a convenient state for the process of manufacture. The salt water is worth more than the rock salt itself; for rock salt cannot be purified without first dissolving it, which is so much extra work. Thus in a single year, a large mass of rock salt, or salt rock, of at least equal size with the bulk of the manufactured article, is delivered from the earth by the silent but mighty workings of nature. But how will the face of the ground be affected by the removal of vast masses of rock from its foundation? It is manifest that a great cavity is forming there. If each year takes out over six millions of cubic feet, a block for instance in the shape of a cone or pyramid and this is continued for a series of years, the result must be an immense chasm—which might easily swallow up Syracuse and its suburbs. The growth of this cavern in any number of years is readily computed; but it is not easy to calculate how long the heavy masses of earth, soil and materials above the chasm, will maintain their position undisturbed by the progressive waste of their foundation.

Analysis of Impure Air.

Lessaigne has examined the nature of the Air of those places where men were living in a crowded state, and where there was hardly any communication with the external atmosphere. The results obtained were almost invariably the same. Of 100 volumes of the air there were 79.35 to 80 10 azote, 19.36 to 20.10 oxygen, 0.62 carbonic acid. The air near the ceiling contained as much carbonic acid as that near the floor.

Grager, of Muhlhausen, ascertained the proportion of ammonia contained in the atmospheric air, by allowing the latter to pass through hydrochloric acid, and binding it thus to platina. He found that 1.06 cubic metres at 0° C. contained 0.0008466 grammes of carbonate of ammonia, or that 100,000 parts of atmospheric air contained 0.6148, that is, three-fifth millionths of carbonate of ammonia. An inquiry on rainy days and in dry weather was attended with the same results.

LIST OF PATENTS.

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending March 13, 1849.

To Jeremiah Warner, of Reading, Pa., for improvement in Cultivators. Patented March 13, 1849.

To Willis Pratt of Springfield, Mass. for improved horizontal Spark Arrester. Patented March 13, 1849.

To Thaddeus Fairbanks, of Johnsburg, Vt. for improvement in Double Scale Balances. Patented March 13, 1849.

To Robert B. Goodyer, of Philadelphia, Pa., for improvement in apparatus for operating Shuttle boxes of Looms. Patented March 13, 1849.

To Alfred B. Leymore, of N. Y., for improved combined Railroad Bar. Patented March 13, 1849.

To Henry Mallow, of Pendleton Co. Va., for improvement in regulating Firebays. Patented March 13, 1849.

To John McGinley, of Philadelphia, Pa. for improvement in Spring Shanks for Boots and Shoes. Patented March 13, 1849.

To Robert Eastman, of Concord N. H., for improvement in Balances for weighing. Patented March 13, 1849.

To William J. Johnson, of Mobile, Ala., for improvement in Cotton Presses. Patented March 13, 1849

To Benj. Morrison, of Harrisburg Pa., for improvement in Rope Machinery. Patented March 13, 1849.

To George E. Waring, of Stamford, Conn., for improvement in Cooking Stoves. Patented March 13, 1849.

To Andrew Hotchkiss of Sharon, Conn., for improvement in Curry Combs. Patented Mar. 13, 1849.

To Wm. T. Sprouse, of Petersburg, Ill., for improvement in Ploughs. Patented March 13. 1849.

To Seth Boyden, of Newark, N. J., for Improved Furnace for Smelting Zinc. Patented March 13. 1849.

To Wm. Beach of Philadelphia, Pa., for Improvement in Curry Combs. Patented March 13. 1849,

To F. P. Dimple, of Philadelphia, Pa., for improvement in Smoke consuming apparatus. Patented March 13, 1849.

To William Harris, of Fayette, N. Y., for improvement in Grain Gatherers. Patented March 13, 1849.

To S. M. Pye, of Aquackanock, N. J., for improved Door Lock. Patented Mar. 13, 1849.

To D. Barnum & T. S Wells, of New York, for improvement in Planing Machines. Patented March 13, 1849.

To E. B. Bigelow, of Boston, Mass., for improvement in Looms for weaving Brussels Carpeting &c. Patented March 13, 1849.

To Andrew McCleary, of Philadelphia Pa, for improved Spiral Spark Arrester. Patented March 13, 1849.

To J. Johnson & J. D. Snyder of Saltsburg, Pa. for improvements in apparatus for dressing cloth. Patented March 13, 1849.

To H. B. Lawton and H. L. Lawton, of New York City, for improvement in Cotton Batting. Patented March 13, 1849.

To H. W. Sabin & L. B. Benton, of N. Y., for improvement in apparatus for raising and tilting Water Buckets. Patented March 13, 1849.

[This list arrived from the Patent Office after our first form had gone to press.

Enormous Cheese.

The London papers mention the arrival there of an enormous cheese. The milk of seven hnndred cows was used in making it, and it weighs 1,474 pounds. It is thirteen feet in circumference, four feet and a quarter in diameter, and eighteen inches in thickness. It was made by Messrs. Austin & Stone, farmers of Austinburgh, Ohio, United States of America, and was offered for and obtained a prize in New York.

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TO CORRESPONDENTS.

"E. H. and H. W. C. of Mass." "H. W. D. of Ct." and J. E. W. of Mo."—Your papers have been sent to you for signing, and as soon as you return them properly executed they will be immediately despatched to the Patent Office.

"R. J., C. J. & M. C. of Mass."—Your model has been received and on the receipt of the Patent Office fee ($30,) we shall proceed with your business.

"W. H. D. and R. C. of Mass."—Your models have come to hand and your inventions shall receive an examination on Monday.

"E. B. of Mass."—Your business is progressing.

"A. G of Mass."—Your letter containing $30 came safe to hand. Your suggestions shall be kept in mind while preparing your specification.

"S. G. of Ky."—You are perfectly correct in reference to the power of the steam and the resistance of the atmosphere, 15 lbs. must be deducted from the real pressure. Your ideas respecting the secondary low pressure cylinder are not fallacious but correct, but you have hit upon a thing that has been long in use in Europe and in some places here. You may have heard of the Wolf Engines. They are built on that principle. The best engines built on this principle, are by McNaught, a drawing of which is in our possession.

"J. M. B. of Ohio."—There is no patent for the hot blast now in existence to our knowledge—the hot blast is more than 30 years old. We suppose that the best way is to heat the air by a single fire.

"S. J. C. of Geo."—The improvements you refer to in Saw Mill gearing &c will be found on page 316, Vol 3 Scientific American. It relates to applying the direct power of the piston to upright saw working in a slide frame. Whether it will answer a beneficial purpose or not we cannot say, you could obtain the particulars by addressing the inventor. We do not know who to refer you to.

"P. R. of Va."—In order to avoid all the difficulties you enumerate—mature your invention, and obtain letters patent for it without delay. There is no danger of your being anticipated if you take seasonable steps to secure it. Your best course will be to forward a model to this office for examination. Keep your invention as secret a possible—in our hand it will be safe, as we do not speculate in patent rights.

"A. W. B. of Ill."—The Daniel planing machine advertised in the Sci. American was sold 3 months ago, at an unprecedented low price for such a machine. New ones are worth from 500 to 800 dollars. The Woodworth machine can be obtained of John Gibson, Albany N. Y.

"P. C. L. of Geo."—If you refer to a specification for a patent it requires 2 witnesses, a deed of sale may be witnessed by 1 or 2 persons, it is not material.

"J. P. of Mass."—Your Pedemotive Carriage, presents some novel peculiarities. But the disposition of the generality of our people is to avoid the physical labor that is now so nobly performed by the horse, and from the fact that railroads have become so general throughout the country, we take it for granted that your efforts (however honorable) to introduce such a carriage, will result to your disappointment.

"G. W. L. of Pa."—Your model and funds have been received. Your business will be attended to soon.

"D. W. E. of N. Y."—There has been some very recent improvements made on Paddle Wheels, constructed with moveable paddles. We are of the opinion that they have not been tested sufficient to decide positively, as to their utility. You will find one noticed in No. 20 present Vol. Scientific American.

"W. C. of Vt."—Your letter and remittance of the 14th inst. came safe and the mistake you speak of has been rectified, accept our thanks for your interest in procuring subscribers.

"W. A. W. of Ala."—We have deposited your business into the hands of an extensive and reputable house, and you will hear from them soon.

"G. A. of N. Y."—A person can obtain letters patent on an invention in the manner you speak of if the patent office has no knowledge of its existence. If it can be shown that the invention has been in public use two years preceding the application, it will invalidate the claim.

"W. T. M. of S. C."—We cannot furnish you the engines for less than $410, free of shipping expences.

"D. G. of N. Y."—We are in receipt of your communication of the 9th inst. The accompanying description of your new principle, appears well upon paper, but we have strong doubts of the operating value. You may rest assured that it will never supercede the use of steam.

"J. J. T. of Geo.''—We shall be unable to attend to your purchases at present as we are very much pressed with our legitimate business It would require 2 days time to ascertain all the information you require.

"B. B. of Me."—We know of no work that would give you any information that would be of service to you upon that subject.

"C. F. G. of O."—It would be well for you to have a cut of your Machine represented in the "Scientific American." Those who have spent 10 dollars for having an engraving of their machines represented in the "American" have never expressed a regret to us that they had done so, except in one case and then the complaint was that the article had attracted so much attention that they could not supply the orders for them. Send us $8 and you may have the same cause to complain. It would make a fine engraving and is a good invention.

"S. H. of Pa."—You will see the notice next week.

"D. W. of La "—The whole object of rotary engines has been to obviate the use of the crank. They are inferior in every respect to the cylinder kind, for working economy, and surely attached to a crank—more so than to communicate the power direct to a revolving shaft. The mercury guage is now in use on boilers here. The Patent Laws that you speak of would never answer—it is not republicanism—but a centralism. This you perceive would soon make the people abolish the whole system.

"H. A. of Missouri"—Next week you will find the matter described.

"J. J. of N. Y."—Waste not you time in constructing air guns or air engines.

"L. J. M. of Mass."—Do not be at the expense of applying for a patent—none would be granted.

"F. A. S. of Wis."—Your model of your alleged improvement in Water Wheels has been received and we find upon examination that there is no possibility of your obtaining letters patent for it. The same combination has been rejected, and had it not been, the whole principle is used in Haviland & Tuttle's patent which precludes the possibility of your success.

"R. S. of Mass."—Your model has been received, we shall await your reply to our communications of 17th inst. The improvement in the model is perceptible and will answer for the patent office, in case you should conclude to differ from our suggestions in regard to making the application.

"T. R. Jr. of Mass."—You will never succeed with your invention, the novelty is so slight, that it would be impossible to make a claim that would be granted by the Commissioner.

We have received numerous enquiries in regard to the sale of patent rights. Our arrangements have not been completed and cannot be at present.

TO IRON FOUNDERS.

FINE ground Sea Coal, an approved article to make the sand come off the Castings easily; fine bolted Charcoal Blacking; Lehigh fine Dust, and Soapstone Dust for facing Stove Plates, &c. &c.; also, Black Lead Dust, for sale in Barrels, by
GEORGE O. ROBERTSON
m24 2meow* 283 West 17th st. New York.

INFORMATION WANTED.

THE address of the gentleman, who advertised in this paper on the 29th April 1848, for a person competent to erect a Shot Tower &c. Address
m20 3t* JOHN, Baltimore Shot Tower.

SUPERIOR ENGINE LATHES.

WE are manufacturing and selling at our establishment in New London, Ct. a superior article of Screw Engine lathes and also hand lathes of every dimension at an extremely low price.
Address ALBERTSON, DOUGLASS & CO.
Post Paid. [d2 6m*] New London, Ct.

Patent Agency.

☞ From our long acquaintance and experience in Patent Office business we have no hesitancy in asserting that we are better able to judge the merits of new inventions, and are better capable of advising upon all subjects pertaining to Patents than any other concern in the United States.

Any business connected with the Patent office may be done by letter through the Scientific American office with the same facility and certainty as though the inventor applied in person. Our prices too (another important consideration to inventors) are but about half as much as the charges of most agents as the amount of business which we do, and that in connection with the publication of the Scientific American renders to us superior advantage over all other agents.

Having been often complimented by those who have entrusted their business in our care, we here repeat what very many have said. "The best Patent Agency in the United States is at the Scientific American office"

All models, drawings or communications that are sent to the Scientific American office for inspection are deposited from the eyes of the public until the necessary application for securing the invention has been made.

The best of artists are constantly employed to make drawings from models and our corps of specification writers are composed of gentlemen formerly connected with the Patent office at Washington as Examiners.

All communications should be addressed to
MUNN & CO. Scientific American Office.
POST PAID. (d16) New York.

MORSE'S AIR DISTRIBUTOR.

For Burning Wet Saw Dust, Tan, Turning Chips or other fine Fuel.

Patented 1846—Re-issued 1848.

IN LOCKPORT N. Y., the Steam Double Saw Mill of R. H. Stevens, running two Saws 160 cuts per minute—2 Stave Sawing and one Planing Machines, Jointer and Circular Saw for cutting off, is driven wholly by the saw dust as made from green logs, bark and clips, without wood or slabs, except for kindling, and has been since October last. Two boilers, 20 feet long, 40 inches diameter, each 2 flues, with heaters, and a chimney 40 feet high are used; a good draft being indispensible.

In Buffalo, N. Case & Cos. Tannery has been running since May 1848, a large Bark mill, 2 setts heavy hide mills, 4 pumps, one roller, two last turning and two last finishing machines and one circular saw for sawing timber, with TAN, without a stick of wood; kindling up with turning chips. Before May last, two cords of hard wood were used daily to do the same work, saving more than one thousand dollars per ann. and using up worthless fuel. A large number of Tanneries, Steam Saw Mills & Machine shops have introduced this great discovery in western New York.

Every Saw Mill and Tannery runinng by steam in this State, can do likewise, and save hundreds of thousands of dollars; and all establishments running by steam, where fine fuel can be had can make a great saving in cost of fuel, by applying to the subscriber, (post paid,) for the right to use in this State and the castings, or to Dr. John A. Campbell, Buffalo. The whole expense is usually saved in cost of fuel in from three to 6 months. Competent persons sent to place the castings if required.

☞ Infringements on this Patent will be prosecuted forthwith. L. A. SPALDING.
Lockport, N. Y. m24 3t*

MUNGER'S IMPROVED TURBINE WATER WHEEL

THIS wheel has been thoroughly tested, and is found to do double the work of a good tub wheel with the same water—no mistake. Many will understand better what it will do by comparing it with the common tub wheel, as in many places these are mostly used. The public trials in this city have caused a number of scientific men to engage in the business, as follows:—

Charles Pierce, of this city, has bought the right of the State of Maine, and is ready to build or sell rights to any in that State. All letters on this business should be directed to Charles Pierce, Manchester, N. H. John G. Meeder and Andrew Edgerton, have that of Illinois, Michigan and Indiana, and all letters of inquiry must be directed to John G. Meeder, Michigan city, Indiana, as he is on his way there with the models, drawings, &c., to give all a chance that wish to engage in it. Thomas S. Jamieson has that of Virginia and Maryland. All letters from these States should be directed to Thomas S. Jamieson, Alexandria, Virginia.

I wish for some good Millwrights in New York State to inform themselves as to the utility of this wheel and engage in the business. Good encouragement will be given. My Post Office address is
m24 HIRAM MUNGER, Manchester, N. H.

PATENT LUBRICATING OIL FOR MACHINERY.

THE subscribers are now prepared to supply Devlan's Patent Oil in any quantity. Machinists, Manufacturers &c., are invited to examine the article. Certificates of its superiority over all other oils from some of our most extensive manufacturers can be seen at this office.

KENNEDY & GELSTON, 51-2 Pine-st. New York, Sole Agents for the New England States, and State of New York.

Samples of the oil may be seen at the Scientific American Office. m10 tf

Lap welded Wrought Iron Tubes
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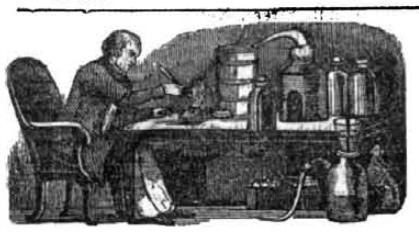


Manufacture of Good Crucibles.

This is a branch of the potter's art requiring great care to insure success, and has generally been considered a very uncertain process. A good crucible is required to stand the greatest heats and to withstand the corrosive effects of any substance ignited in them, also to to stand sudden changes of the temperature. Good crucibles must be composed of a material sufficiently solid in its texture, to prevent the passage of the fluid metal through its pores. The composition producing pots of the best quality, is formed by pure fire clay, mixed with finely ground cement of old crucibles, to which is added a portion of black lead or plumbago. The clay is prepared in the same manner as observed in pottery generally; the vessels after being worked to the proper conical shape, are slowly dried and then baked in a kiln. The composition used in the Royal Foundry of Berlin, is formed of 8 parts in bulk, of Stourbridge clay and cement, 5 of coke, and 4 of graphite or plumbago. Crucibles manufactured from this mixture are capable of withstanding the greatest possible heat, in which wrought iron melts, being equal to from 150 to 155° Wedgewood: they also bear sudden cooling without cracking. In the Berlin Foundry they have been employed for 23 consecutive meltings of 76 lbs. of iron each, which perhaps is the most complete and trying test that could be adopted.

Another composition is as follows;—8 lbs. Stourbridge clay: 4 lbs. burned clay cement; 2 lbs. coke powder, and 2 lbs. pipe clay; the whole being compressed in moulds whilst in a pasty state.

Mr. Anstey's patent process for the manufacture of crucibles, is as follows:—Two parts of finely ground raw Stourbridge clay, and one part of the hardest gas coke, previously pulverised, and sifted through a sieve of 1-8th inch mesh, are mixed well together with water. This mixture is moulded on a revolving wooden block, somewhat similar to the process pursued in pot throwing, a guage being used to regulate the thickness of the pot, and a cap of linen placed upon the core previous to the application of the clay, in order to prevent its adhering when removed. The pot is then dried in a gentle heat and is not thoroughly completed until required for use. It is then warmed before a fire, and laid in the furnace, with the mouth downwards, the heat of the fire having been previously lowered by the application of fresh coke. The furnace is then filled with coke sufficiently high to cover the crucible, when it is gradually brought up to a red heat. When this is the case, it is reversed, and fixed in its proper position in the furnace, without being allowed to cool. The charge of metal is then put into the crucible, and three or four large pieces of coke are placed across the mouth of the pot, the tile or lid is then put down, and the draught of the furnace adjusted to heat the metal quickly.

Brilliant Whitewash.

Many have heard of the brilliant stucco whitewash on the east end of the President's house at Washington. The following is a receipt, for making it, as gleaned from the National Intelligencer, with some additional improvements learned by experiment:

Take a half bushel of nice unslacked lime, slake it with boiling water and cover it during the process to keep in the steam. Strain the liquid through a fine sieve or strainer, and add to it a peck of clean salt, previously well dissolved in warm water: three pounds ground rice, boiled to thin paste, and stirred in boiling hot; half a pound of powdered Spanish whiting, and a pound of clean glue, which has been previously dissolved by first soaking it well, and then hanging it over a close fire in a small kettle within a large one filled with water. Add five gallons of hot water to the whole mixture; stir it well and let it stand a few days covered from the dirt. It should be put on right hot; for this purpose, it can be kept in a kettle on a portable furnace. It is said that about one pint of this mixture will cover a square yard upon the outside of a house if properly applied.

Brushes more or less small may be used according to the neatness of the job required.—It answers as well as oil paint for wood, brick, or stone, and is cheaper. It retains its brilliancy for many years. There is nothing of the kind, that will compare with it, either for inside or outside walls.

Spanish-brown stirred in will make red or pink more or less deep according to the quantity. A delicate tinge of this is very pretty for inside walls. Finely pulverised common clay, well mixed with Spanish-brown before it is stired into the mixture, makes a lilac color, very suitable for the outside of the buildings. Lamp-black and Spanish-brown mixed together make a reddish stone color. Yellow ochre stirred in makes a yellow wash; but chrome goes farther, and makes a color generally esteemed prettier. In all these cases, the darkness of the shade of course is determined by the quantity of coloring used.

When walls have been badly smoked, and you wish to have them a clean white, it will do to squeeze indigo plentifully through a bag into the water you use, before it is stirred in the whole mixture.

If a larger quantity than five gallons is wanted the same proportions should be observed.

[The above receipt we have noticed before, (last year) but as the season is approaching when walls, fences, &c. will look and feel all the better of a new coat, we must recommend some of its features to the attention of housewives and husbands. But first we must say, that those who use hot lime will find that it soon destroys brushes. The rice paste is the best that can be used. Don't use much glue, as it is apt to make the lime scale off. No person need expect any lime wash to be as good as oil paint—that is all nonsense. There are but few coloring matters that look well mixed with lime. Chrome certainly does not. It loses its yellow color and becomes a dirty orange. A litter of the sulphate of iron, mixed with lime, makes a very good cream color—the iron scales around a blacksmith's forge aaswer the same purpose. We prefer to use the lime without any coloring matter in it except a little indigo. Those who use whiting for the ceilings of papered rooms should mix a little indigo with it.

Leavened Bread.

The perfection of fermented bread consists first in its exhibition when the loaf is cut through, a pile of air cells gradually increasing in size as they approach the top of the loaf. Secondly, the middle of the loaf should be as dry as the part next the crust and not crumble when cut.

Bread undergoes a great change soon after it is baked. No person can eat as much old as new bread, and this shows that it absorbs nutriment from the atmosphere? What is this nutriment? Nitrogen undoubtedly. Carbonic acid is driven off in the baking and this is what makes the numerous cells in the bread. It is the same with charcoal. Well, a cubic inch of charcoal, with its numerous minute cells, possesses, strange as it may seem, at the lowest computation, a surface of one hundred square feet. Charcoal has the property of absorbing the gases to a wonderful degree, and bread has the same property. But it is just as ready to absorb a hurtful as a wholesome gas. For this reason it should be set in a dry and airy situation, not in a damp cellar or close pantry. Warm bread is not esteemed so wholesome as bread that has been baked 24 hours, and although people can eat more at a meal of the former, yet the next meal does not find the appetite in so healthy a tone as after taking the previous meal of old bread.

Durability of Cedar.

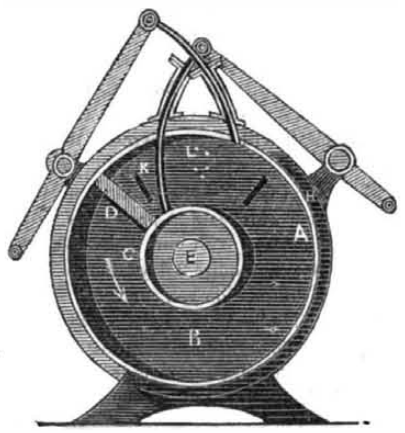
At the head of one of the graves in the burial ground "Old St. Mary's," Md, there stands a cedar slab which, as the inscription indicates, was placed there in the year 1718. Notwithstanding it has been exposed to the weather for so long a period, it is still perfectly sound; and if unmolested by desecrating hands, it will doubtless be standing when every man woman and child that moves upon the earth, shall have gone down to "darkness and the worm."

History of the Rotary Engine.

Prepared expressly for the Scientific American.

STEENSTRUP'S ROTARY ENGINE.

FIG. 53.



This is a vertical section of Paul Steenstrup's engine, invented in 1828, and it is a strange looking affair, yet not so curious or impracticable as to induce us to believe that only one man could conceive such an idea.—In 1847 a rotary engine nearly the same in all respects, was exhibited in New York. It is true that it was universally acknowledged to be a poor one, but still it showed that there are "many men of not many minds."

A, is a section of a cylinder accurately turned and bolted at each end to a plate B, which is ground perfectly flat. C, is a smaller cylinder, to which is attached a rectangular piston D. E, is the shaft secured by screws to the small cylinders and turning in stuffing boxes. F, is a slide moving in circular grooves cut in each end piece of the cylinder and in a steam tight box. H, is a lever connected by gearing to the shaft of the engine and serving to draw up the slide into the box, in order to allow the piston to pass. The slides are portions of a circle, of which the axis of the lever H, is the centre. K, is the steam valve and L, the exhaust valve.

OPERATION.—The slide F, being down, and resting on the interior cylinder, and the piston in the position shown in the drawing, the steam is admitted by the valve K, which impels the piston in the direction of the arrow. When the piston comes near to the exhaust opening L, the steam is cut off and the piston is carried past the passage by a fly wheel (for it needs one too) on the shaft of the engine—the slide being previously raised into the box, to allow the piston to pass.—When the piston has passed, the steam is readmitted and the same operation continued.—With an engine that does not need to be reversed, only one slide and one steam valve is necessary, but when it is wanted to be reversed, the two slides are required.

Diamond and Coke.

In 1847 M. Jacquelain of Paris, succeeded in converting diamond into a substance possessing the appearance, physical character, and electrical properties of coke by the following process:—Having attached a piece of hard gas retort carbon to the positive wire of Dudson's battery of 200 elements, he placed on it a small piece of diamond. He then armed the negative wire with a cone of the same carbon, and, by dexterous manipulation, enveloped the diamond with electric flame. After a short interval, the diamond underwent a sort of ebullition, became disintegrated, softened, and was actually coke.

Professor Farraday in commenting on the above before the Royal Society alluded to the case of sulphur, which becomes brittle when suddenly cooled from its first state of fusion, but is soft and pliable when similarly cooled from its second state of fusion. He also showed by experiment that diamond could be burned into carbonic acid gas by means of a current of oxygen gas directed on it when highly heated, but neither this heat nor any short of that of the voltaic battery, except that of the solar lens, was sufficient to convert diamond into coke. The voltaic arc was the most beautiful and powerful furnace. Crystal rock might be fused by a current of oxygen sent through an ether flame. This powerful heat was inferior in intensity to that of the battery.

When a diamond is converted into coke it loses .689 of its specific gravity, which is 3.368—and also its insulating power.

Simple Remedy for Burns.

An esteemed lady friend sends us the following "remedy for the most painful burns," which, "if applied immediately, affords almost instant relief." She says: It consists of equal parts of linseed oil and lime mixed together. It must be well shaken before using and poured over an even piece of raw cotton and applied to the sore. It may be renewed two or three times a day. This remedy is valuable to families, and so simple that it is within the reach of every one. She has seen almost immediate relief derived from the application of this mixture to the most painful and serious burns, which, without it, might possibly have become wide spread, tedious and expensive wounds

We copy the above from the Baltimore Sun to endorse its truth. The lime water and the oil makes a beautiful white salve, personally tried some years ago, with satisfaction.

Universal Cement.

Curdle skimmed milk, then collect the curd press out the whey, break the curd into small pieces, dry by the heat of a water bath and reduce it to a fine powder. To ten ounces of this powder add one ounce of finely powdered quicklime and two scruples of camphor.—Mix them well together, and keep the mixture in closely stoppered bottles. When it is wanted to be used, a portion of this powder is to be mixed with a little water, so as to form a paste, which is to be applied quickly. This cement may be used for almost every thing in the shape of fine work.

Economical Hair Wash.

Take one ounce of borax, half an ounce of camphor; powder these ingredients fine, and dissolve them in one quart of boiling water; when cool, the solution will be ready for use—damp the hair frequently. This wash not only effectually cleanses and beautifies, but strengthens the hair, preserves the color, and prevents early baldness. This, we conceive, cannot be too generally made known.

Tin foil applied between the joints of fine brass work, first wetted with a strong solution of ammoniac makes an excellent joint, care being taken not to use too much heat.

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